Review: Exponential and Logarithmic Functions   Date_____ Period____

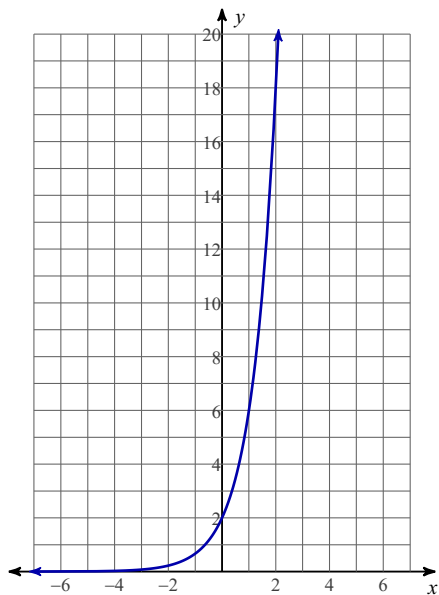**Sketch the graph of each exponential function.**

1) $y = 4^x$

2) $y = \left(\dfrac{1}{3}\right)^x$

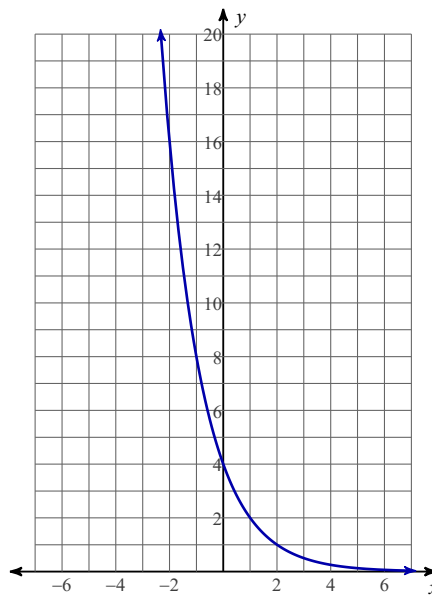3) $y = 3 \cdot \left(\dfrac{1}{2}\right)^{x-1}$

4) $y = -4 \cdot 2^x - 2$

Write an equation for each graph.

5)

6)

7) Without graphing, determine whether the function represents exponential growth or decay.

$y = 2 \cdot 1.05^x$

$y = 4 \cdot \left(\dfrac{3}{5}\right)^x$

$y = 3 \cdot 0.45^x$

8) Write the equation of an exponential function for each given set of ordered pairs.

(A) $(-1, \dfrac{4}{3})$, $(0, 4)$, $(1, 12)$, $(2, 36)$

(B) $(1, 16)$, $(2, 4)$, $(3, 1)$, $(4, \dfrac{1}{4})$

Evaluate each logarithmic expression.

9) $\log_4 16$

10) $\log_4 \dfrac{1}{64}$

11) $\ln \sqrt{e}$

12) $\log_{216} 6$

Use a calculator to approximate each to the nearest thousandth.

13) $\log_2 6.8$

14) $\log_7 2.1$

Sketch the graph of each function.

15) $y = \log_{\frac{1}{5}} (x - 1)$

16) $y = \log_3 (x - 1)$